REMARKS

Claims 1-15 are present in the application. In view of the remarks that follow, Applicant respectfully requests reconsideration.

Transfer of Responsibility

Applicant wishes to advise the Examiner that, since issuance of the last Office Action, responsibility for this application has been transferred from the law firm of Dicke, Billig & Czaja, PLLC to the law firm of Haynes and Boone LLP. A revocation of the existing power of attorney and a new power of attorney will be submitted in due course. In the meantime, the undersigned is acting under the provisions of 37 C.F.R. §1.34.

Comment Regarding "Adapted To" and "Capable Of"

On page 2 of the Office Action, the Examiner notes that Applicant's claims use the term "adapted to". The Examiner then asserts that this term "does not constitute a limitation in any patentable sense". In support of this assertion, the Examiner cites a 1946 decision of the Court of Customs and Patent Appeals (CCPA), which is *In re Hutchinson*, 69 USPQ 138 (CCPA 1946). However, the Examiner's statement of the law is not correct, and the 1946 *Hutchinson* decision is now obsolete. In more detail, the Manual of Patent Examining Procedure (MPEP) addresses the specific term "adapted to" in §2173.05(g), where the PTO explains that:

> In a claim that was directed to a kit of component parts capable of being assembled, the Court held that limitations such as "members adapted to be positioned" and "portions . . . being resiliently dilatable whereby said housing may be slidably positioned" serve to precisely define present structural attributes of interrelated

> component parts of the claimed assembly. *In re Venezia*, 530 F.2d 956, 189 USPQ 149 (CCPA 1976). (Emphasis added)

In other words, and contrary to the assertions in the Office Action, the current position of the courts and the PTO is that the term "adapted to" does define a structural limitation, and that this structural limitation must be given patentable weight. In effect, the CCPA's 1946 decision of *In re Hutchinson* was superceded 30 years later by the 1976 decision of that same court in *In re Venezia*. Appendix II of the MPEP sets forth a list of cases that are cited in the MPEP, and the Examiner will note that *Hutchinson* is not cited anywhere in the MPEP (because as a practical matter it is no longer good law).

Similarly, on page 3 of the Office Action, the Examiner notes that Applicant's claims use the term "capable of". The Examiner asserts that this term "does not constitute a limitation in any patentable sense", and again cites the obsolete *Hutchinson* case. However, it will be noted that the above-quoted passage from *Venezia* uses the term "capable of". Accordingly, for the same basic reasons explained above in regard to the term "adapted to", the term "capable of" does define a structural limitation, and this structural limitation must be given patentable weight.

In effect, the Office Action indicates that, while examining Applicant's claims, the Examiner ignored certain claim language. However, under official PTO policy, that claim language recites structural limitations, which must be taken into account during examination. Applicant respectfully requests that the Examiner comply with PTO policy and consider all structural limitations that appear in Applicant's claims.

Independent Claim 1

Independent Claim 1 stands rejected under 35 U.S.C. §103 on the ground that it would be obvious in view of a proposed combination of teachings from Young U.S. Patent No. 5,838,127 and Starkie U.S. Patent No. 6,329,785. This ground of rejection is respectfully traversed, for the following reasons. The PTO specifies in MPEP §2142 that:

> The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

Applicant respectfully submits that Young and Starkie fail to establish a prima facie case of obviousness under §103 with respect to Claim 1, for several mutually exclusive reasons that are discussed separately below.

NONANALOGOUS ART CANNOT BE USED TO ESTABLISH OBVIOUSNESS

Only analogous prior art can be considered for the purpose of trying to establish a prima facie case of obviousness under 35 U.S.C. §103. In this regard, MPEP §2141.01(a) specifies that, for a reference to be "analogous" prior art that can be considered under §103, it must be either (1) in the field of Applicant's endeavor or (2) reasonably pertinent to the particular problem with which the inventor was concerned. The provisions of §2141.01(a) go on to explain that, although the PTO classification system carries a small amount of weight in determining what is relevant, the similarities and differences in structure and function carry far greater weight. In this regard, §2141.01(a) discusses a specific example, and states that:

> The court also found the reference was not reasonably pertinent to the problem with which the inventor was concerned because a person having ordinary skill in the art would not reasonably have expected to solve the problem of dead volume in tanks for refined petroleum by considering a reference dealing with plugging underground formation anomalies.

With reference to the field of the invention on page 1 of Applicant's specification, the field of Applicant's endeavor is "machines which are required to be operated in both motoring and generating modes". The particular problem with which the present inventor was concerned is improving the switching circuitry for a machine that can be operated in both motoring and generating modes. In contrast, Young and Starkie each disclose machines that are configured to be operated in a motoring mode, but neither discloses a machine that is also capable of being operated in a generating mode. The Examiner repeatedly asserts in the Office Action that reverse operation of a motor constitutes operation of the motor as a generator. Applicant respectfully disagrees. Persons skilled in the art are very well aware that reverse operation of a motor means the rotor is turning backward but current is still flowing away from the supply, whereas operation as a generator is different because current flows into the supply rather than out of the supply. Consequently, neither Young nor Starkie is within Applicant's field of endeavor, and neither of these references has any teachings that are reasonably pertinent to the particular problem with which the present inventor was concerned. Accordingly, it is respectfully submitted that neither Young nor Starkie is what the PTO considers to be "analogous" prior art, and neither of these two references can be properly used in an attempt to establish a prima facie case of obviousness under §103 with respect to Applicant's claims. Consequently, the Examiner's burden of factually supporting a prima facie case of obviousness has not been met. For this reason alone, it is respectfully submitted that the pending §103 rejection must be withdrawn, and notice to that effect is respectfully requested.

YOUNG DOES NOT TEACH WHAT THE OFFICE ACTION SAYS IT DOES

Claim 1 includes limitations reciting that:

> . . . the first set switches and the second set of switches being adapted to . . . return current to the supply, . . . the switches of the

first set and the switches of the second set being arranged to conduct current in both a first direction and a second direction . . .

In lines 21-22 on page 2 of the Office Action, the Examiner discusses Figure 2 of Young, and asserts that Young teaches "switches of the first and second sets conducting current in both a first and a second direction (col. 5:48-50 MOSFETS are bidirectional)". However, this statement takes Young's reference to MOSFETs out of context. In the indicated passage at lines 48-50 of column 5, what Young states is that the switches 148, 150, 152 and 154 in the circuit of Figure 2 can be successfully implemented with any of "IGBT's, BJT's or MOSFET's". As is well known in the art, IGBTs and BJTs are unidirectional devices. Consequently, since Young teaches that the disclosed switches 148, 150, 152 and 154 can all be implemented with either IGBTs or BJTs, Young is expressly teaching that the switches 148, 150, 152 and 154 all necessarily operate unidirectionally in all operating modes of the disclosed circuit. Accordingly, there is no basis for the assertion in the Office Action that Young discloses a system in which the switches 148, 150, 152 and 154 are all bidirectional, and operate to conduct "current in both a first direction and a second direction". In other words, Young does not teach what the Office Action says it does. It is therefore respectfully submitted that Young fails to fulfill its intended role in the §103 rejection, and that the §103 rejection fails to establish a prima facie case of obvousness and should be withdrawn.

A further and separate consideration is that, in lines 15-16 on page 2, the Office Action asserts that Young discloses "first and second sets of switches adapted to . . . returning [sic] current to the supply". However, as discussed in the preceding paragraph, the circuit disclosed in Young operates the switches 148, 150, 152 and 154 in a manner so that current flowing through each of them is always unidirectional, and in a direction out of the supply P+. Thus, in Figure 2, current never flows upwardly through any of the switches 148, 150, 152 and 154 in a direction into the supply P+. Therefore, and contrary to the assertions in the Office Action, there is no teaching in Young that these switches return current to the supply, and in fact Young

contemplates that returning current to the supply would be impossible. The Office Action includes an assertion by the Examiner that reverse operation of a motor constitutes operation of the motor as a generator. However, as noted above, reverse operation of a motor means the rotor is turning backward, but that current is still flowing out of the supply. In contrast, operation as a generator is different because current flows into the supply rather than out of the supply. As discussed above, Young contemplates that returning current to the supply P+ would be impossible for his circuit. Accordingly, as to the assertion in the Office Action that Young teaches "returning current to the supply", it is respectfully submitted that this is a further example of how Young does not actually teach what the Office Action says it does. Young therefore fails to fulfill its intended role in the §103 rejection, and thus the §103 rejection fails to establish a prima facie case of obviousness. The §103 rejection is therefore defective, and it is respectfully submitted that it should be withdrawn.

PTO CANNOT ESTABLISH OBVIOUSNESS WITH ART THAT TEACHES AWAY

In evaluating obviousness, it is not proper to selectively consider only part of a reference, while ignoring other parts that teach away from the invention. In this regard, the provisions of MPEP §2141.02 specify that:

> A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. (Emphasis in original).

As discussed above, lines 48-50 in column 5 of Young state that the switches 148, 150, 152 and 154 in the circuit of Figure 2 can be successfully implemented with any of "IGBT's, BJT's or MOSFET's". Therefore, since it is well known in the art that IGBTs and BJTs are unidirectional devices, Young teaches directly away from the idea that his system could ever be capable of operating any of the switches 148, 150, 152 and 154 in bidirectional manner. In other words,

Young teaches directly away from the Examiner's proposed interpretation of Young. The Examiner is using hindsight of Applicant's teachings to try to find something in Young that is not really there, and that runs contrary to what Young actually teaches. Since it is well recognized that teaching away from a claimed invention is *a per se demonstration of lack of prima facie* obviousness, it is respectfully submitted that Applicant's Claim 1 is not rendered obvious under §103 based on Young (considered with or without Starkie). Accordingly, for this independent reason alone, it is respectfully submitted that amended Claim 1 is patentably distinct from Young and Starkie, and notice to that effect is respectfully requested.

STARKIE DOES NOT TEACH WHAT THE OFFICE ACTION SAYS IT DOES

Claim 1 also specifies the recited circuit is configured with:

> . . . the first set of switches and the second set of switches being adapted to supply current to the phase winding . . . [and] the switches of the first set being rated for a higher current than the switches of the second set.

The Office Action admits that the circuit shown in Figure 2 of Young does not have two switches that can each supply current from a supply to a winding, and that also have different current ratings. The Office Action then asserts that this is disclosed in Starkie. In particular, the Examiner relies on Figure 3 of Starkie, which shows a circuit having a supply 13, a phase winding 15, a first set of switches 23 with one current rating, and a second set of switches 25 with a different current rating. However, and contrary to the assertions in the Office Action, the second set of switches 25 is not capable of supplying current from the supply 13 to the winding 15. In particular, the switches 25 are connected in parallel with the winding 15. When the switches 25 are open, no current can flow through them. And when the switches 25 are closed, they directly short out the winding 15, so that it is impossible for them to supply current to the

winding. The only switches in Figure 3 of Starkie that are capable of supplying current from the supply 13 to the winding 15 are the two switches 23, and they both have exactly the same current rating. Stated differently, all of the switches in Starkie that are capable of supplying current from the supply 13 to the winding 15 have exactly the same current rating. Thus, Starkie is no different from Young and adds nothing to the teachings of Young, because Starkie and Young each use exactly the same current rating for every switch that is capable of supplying power from a supply to a winding. Starkie thus does not teach what the Office Action says it does. And Young and Starkie cannot together teach something that is not actually taught in either one of them.

Since Starkie does not teach what the Office Action says it does, it is respectfully submitted that Starkie fails to fulfill its intended role in the §103 rejection, and that the §103 rejection thus fails to establish a prima facie case of obviousness. It is therefore respectfully submitted that the §103 rejection is defective, and should be withdrawn.

THE PROPOSED MODIFICATION OF YOUNG IS NOT PROPER

There is yet another reason why the proposed modification of Young is not proper under §103. In this regard, MPEP §2142 explains that, in order to establish a prima facie case of obvousness under §103, the Examner must demonstrate that a person of ordinary skill in the art would be motivated to make the proposed combination, and the "teaching or suggestion to make the claimed combination . . . must . . . be found in the prior art, and not based on applicant's disclosure". MPEP §2143.01 explains in more detail that:

> The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. . . . Although a prior art device "may be capable of being modified to run the way

> the apparatus is claimed, there must be a suggestion or motivation in the reference to do so". (Emphasis in original).

MPEP §2142 adds that:

> To reach a proper determination under §103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. . . . Knowledge of applicant's disclosure must be put aside in reaching this determination, . . . impermissible hindsight must be avoided, and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

In the present §103 rejection, the Examiner asserts that, in view of Starkie, it would be obvious to selectively modify the switches 148, 150, 152 and 154 in Young so that some of them have current ratings different from others. The Examiner asserts that the motivation for this modification would be "to provide overcurrent protection". However, this asserted motivation does not make sense. If a person of ordinary skill set out with the specific goal of providing overcurrent protection, the person would increase the current rating of all of the switches in Young (rather than just some of the switches), so that all of the switches would be equally protected from any possible overcurrent condition.

Moreover, the MPEP emphasizes that motivation must be based on the prior art, and not on hindsight of Applicant's disclosre. The present Office Action admits the circuit in Figure 2 of Young does not have two switches that each supply current from a supply to a winding, and that have different current ratings. The Office Action then asserts that, in view of Starkie, it would be obvious to modify the switches in Young so that at least two of them have different current

ratings. However, as discussed earlier, all of the switches in Starkie that are capable of supplying current from the supply 13 to the winding 15 have exactly the same current rating. Starkie is no different from Young on this point, and adds nothing to the teaching of Young. Consequently, there is nothing in either Young or Starkie that would motivate a person of ordinary skill in the art to make the proposed modification to Young. Thus, what the Examiner is actually doing is using hindsight (1) to selectively extract isolated teachings from Young and Starkie, (2) to add in some teachings that are not present in either Young or Starkie, and (3) to then combine all of these isolated teachings using hindsight as an engineering blueprint, in order to ultimately arrive at the subject matter recited in Applicant's Claim 1. But this approach is expressly prohibited by the courts and the PTO. For example, as noted above, MPEP §2142 states that, to establish a prima facie case of obviousness, the Examiner must show motivation which is "found in the prior art, and not based on applicant's disclosure". Since the present §103 rejection fails to do this, it is respectfully submitted that this is yet another reason why the Examiner has failed to properly establish a prima facie case of obviousness with respect to Applicant's Claim 1.

In view of the various different reasons discussed above, it is respectfully submitted that Claim 1 is not obvious under §103 in view of Young and Starkie. Claim 1 is therefore believed to be allowable, and notice to that effect is respectfully requested.

Independent Claims 12, 14 and 15

Independent Claim 12 recites an apparatus having:

> . . . an excitation circuit comprising a plurality of switches . . . comprising a first set and a second set, the excitation circuit being arranged, during a motoring mode, to supply current to the phase winding via the first set and to provide a path for returning current to the supply via the second set and, during a generating mode, to supply current to the phase winding via the second set and to return

> current to the supply via the first set, the switches of the first set being rated for a higher current than the switches of the second set.

Independent Claim 14 recites a method of controlling an apparatus that includes:

> . . . an excitation circuit comprising a plurality of switches . . . comprising a first set and a second set, the method comprising, during a motoring mode, supplying current to the phase winding via the first set and returning current to the supply via the second set and, during a generating mode, supplying current to the phase winding via the second set and returning current to the supply via the first set, wherein the switches of the first set are rated for a higher current than the switches of the second set.

Independent Claim 15 recites an apparatus having:

> . . . an excitation circuit . . . comprising a plurality of switches . . ., means for supplying current during a motoring mode to the phase winding via a first set of the switches and returning current to the supply via a second set of the switches, and means for supplying current during a generating mode to the phase winding via the second set and returning current to the supply via the first set, the switches of the first set being rated for a higher current than the switches of the second set.

Claims 12, 14 and 15 stand rejected under 35 U.S.C. §103 on the ground that the subject matter of each would be obvious in view of a proposed combination of teachings from Young and

Starkie. This ground of rejection is respectfully traversed. The rationale given in the Office Action for each of these rejections is the same basic rationale given for the rejection of Claim 1. Accordingly, for the same basic reasons discussed above in association with Claim 1, it is respectfully submitted that the Office Action fails to properly establish a prima facie case of obviousness under §103 with respect to any of Applicant's Claims 12, 14 or 15. Accordingly, Claims 12, 14 and 15 are each believed to be allowable over Yong and Starkie, and notice to that effect is respectfully requested.

Dependent Claims

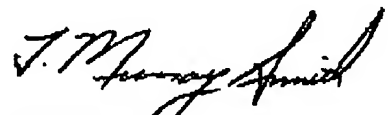
Claims 2-11 and Claim 13 respectively depend from Claim 1 and Claim 12, and are also believed to be distinct from the art of record, for at least the same reasons discussed above with respect to Claims 1 and 12.

Conclusion

Based on the foregoing, it is respectfully submitted that all of the pending claims are fully allowable, and favorable reconsideration of this application is therefore respectfully requested. If the Examiner believes that examination of the present application may be advanced in any way by a telephone conference, the Examiner is invited to telephone the undersigned attorney at 972-739-8647.

Although Applicant believes that no fees are due in association with the filing of this paper, the Commissioner is hereby authorized to charge any additional fee required by this paper, or to credit any overpayment, to Deposit Account No. 08-1394 of Haynes and Boone LLP.

Respectfully submitted,



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